

WHAT IS CLAIMED IS:

1. A semiconductor device, comprising:

an insulating film formed on a substrate; and

an embedded wiring formed in the insulating film,

5 wherein

the embedded wiring is formed from a copper alloy containing at least one of elements Al, Si, Ir and Ru, and a content of the element in the embedded wiring is increased toward the insulating film.

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2. A semiconductor device, comprising:

an insulating film formed on a substrate; and

a wiring formed on the insulating film, wherein

the wiring is formed from a copper alloy containing at

15 least one of elements Al, Si, Ir and Ru, and a content of the element in the wiring is increased toward the insulating film.

3. A method for manufacturing a semiconductor device, comprising the steps of:

20 forming a recess in an insulating film on a substrate;

depositing a first conductive film on a bottom and wall surface of the recess, the first conductive film being formed from a first copper alloy having oxidation resistance;

growing a second conductive film on the first conductive

25 film by an electroplating method so as to completely fill the

recess, the second conductive film being formed from copper or a second copper alloy; and

integrating the first and second conductive films into a third conductive film so as to form an embedded wiring of the
5 third conductive film.

4. The method according to claim 3, wherein the step of depositing the first conductive film includes the step of depositing the first conductive film with (111) orientation
10 with respect to the bottom of the recess.

5. The method according to claim 3, wherein the first copper alloy contains at least one of elements Al, Si, Ir and Ru.

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